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ABSTRACT

Clinicians must work to increase the levels of self-control of their hyperactive, impulsive, or aggressive child clients to treat their academic, social, and personal problems effectively. Outcome studies of cognitive behavioral interventions have contributed data suggesting that effective application of these interventions does increase the children's self-control. These interventions teach the child cognitive strategies to use in gaining self-control over maladaptive behaviors. Verbal self-instruction and problem solving are the two basic cognitive behavioral intervention approaches applied to children deficient in self-control. Verbal self-instruction is often applied to self-control problems affecting academic performance and other intrapersonal situations. One verbal self-instruction package consists of five steps: cognitive modeling; overt external guidance; overt self-guidance; faded, overt self-guidance; and covert self-instruction. Problem solving training is often applied to self-control problems affecting social skills and interpersonal situations. Common elements of problem solving interventions include modeling, overt rehearsal, role-playing, and feedback. While verbal self-instruction and problem solving training showed positive results for increasing children's self-control on training tasks, they were less positive in producing generalization of self-control to other situations. Guidelines for more effective applications of these interventions include: (1) integrating response-cost contingencies and conceptual teaching into training procedures; (2) assessing mental age or level of cognitive development; and (3) combining cognitive behavioral strategies with other treatment approaches (psychostimulants, child self-monitoring, training family members). A seven-page reference list concludes the paper. (NB)

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EFFECTIVE APPLICATION OF COGNITIVE BEHAVIORAL
INTERVENTIONS WITH CHILDREN DEFICIENT IN SELF-CONTROL

BY

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To Dan,

Sweet model of perseverance and love during
a long commute and a lifetime of graduate school.

Abstract

This paper reviews the literature on cognitive behavioral interventions with children deficient in self-control. Descriptions of the major training approaches, verbal self instruction and problem solving, are presented and evaluated. Guidelines for more effective applications of these interventions are then described. These guidelines include (a) integrating response-cost contingencies and conceptual teaching into training procedures, (b) assessing mental age or level of cognitive development, and (c) combining cognitive behavioral strategies with other treatment approaches (psychostimulants, child self-monitoring, training family members).

Effective Application of Cognitive Behavioral Interventions with Children Deficient in Self-Control

Self-control in children is a desirable trait. Clinicians who work with children suffering academic, social, or personal problems related to impulsivity, hyperactivity, or aggressiveness must increase their clients' levels of self-control to treat the problems effectively. Behavior modification techniques offer one method of treatment by modifying the child's environment with contingencies to change the child's maladaptive behaviors. These techniques are effective but tedious, and they do not readily generalize to other behaviors and situations not externally modified (Meador & Ollendick, 1984).

Cognitive behavioral interventions focus on making the child rather than the environment the agent of change. These interventions teach the child cognitive strategies to use in gaining self-control over his or her maladaptive behaviors. Cognitive behavioral interventions have been found effective in increasing self-control of impulsive, hyperactive, or aggressive children. However, evidence of generalization of increased self-control to tasks and situations beyond the lab or training environment has been less than originally hoped. Nevertheless, in this second decade of studies, cognitive behavioral researchers are renewing their efforts to understand cognitive development

and to determine the active ingredients of cognitive behavioral interventions.

In light of these renewed research efforts, cognitive behavioral interventions are useful tools for the clinician working with impulsive, hyperactive, or aggressive children for three reasons: (a) These interventions are effective and generalizable in academic and in interpersonal situations, especially when certain guidelines for training procedures are followed; (b) these interventions are effective and generalizable when the child's mental age or cognitive level of development is matched to certain cognitive behavioral techniques; and (c) these interventions can be combined with other treatment modalities or applied to the child and to the child's family members to increase treatment effectiveness and to enhance generalizability. If the clinician is conscientious in following appropriate guidelines and in assessing the client's behaviors before and after treatment, the treatment will be more effective. The clinician will also have practical data available to offer the researchers for documentation of the clinical utility of cognitive behavioral interventions.

I will begin by giving an overview of the two basic cognitive behavioral interventions applied to children deficient in self-control. I will then discuss each of

the three reasons why these interventions are useful to the clinician who works with these children.

Overview of Cognitive Behavioral Interventions

The main emphasis of cognitive behavioral interventions is on the child's thinking processes. These interventions have been developed to help psychologists understand (a) the processes involved when a child is faced with personal, social, or academic problems; (b) how the child can successfully process and solve the problems; and (c) how these processes can best be taught to the child deficient in their use (Kendall, 1981). Cognitive behavioral interventions are designed to teach cognitive strategies to children who get into trouble for acting without thinking. The children are taught to recognize the problem behaviors and to employ the new strategies in typically troublesome situations. When the strategies are used and behavioral change is measured, the conclusion is made that the strategies have mediated the behaviors to bring about an increase in self-control (Meichenbaum, 1977).

Cognitive behavioral interventions used with children can be categorized into two general approaches: verbal self instruction and problem solving. Verbal self instruction training is more often applied to self-control problems affecting academic performance and other intrapersonal situations; problem solving training is

more often applied to self-control problems affecting social skills and interpersonal situations. Each of these two approaches offers a prototype regimen of training procedures for use with specific training tasks. I will briefly describe these basic models and a key variation of each.

Verbal Self Instruction

Meichenbaum and Goodman (1971) developed the verbal self instruction package most often cited in the outcome literature. Their package was first developed to teach hyperactive children to think before they act, that is, to develop some self-control in the classroom. They combined Mischel's (1974) finding that cognitive appraisal has a powerful role in developing children's self-control, and Vygotsky's (1962) proposal that motor behavior comes under verbal control through a process of faded private speech. The package includes five procedural steps for application to each training task: (1) cognitive modeling--an adult model performs a task while talking aloud, describing the cognitive steps to the task; (2) overt external guidance--the child performs the same task while the model verbalizes the instructions to the child; (3) overt self-guidance--the child performs the task while verbalizing the instructions; (4) faded, overt self-guidance--the child performs the task while whispering instructions; and (5) covert self-instruction--

the child performs the task while guiding performance via covert private speech (Meichenbaum, 1977).

Once these five procedural steps are completed with the first training task, other more complex training tasks are introduced. Also, cognitive modeling is expanded to include self-statements which teach problem solving skills, such as:

- (1) problem definition ("what is it I have to do");
- (2) focusing attention and response guidance ("carefully. . .draw the line down"); (3) self-reinforcement ("Good, I'm doing fine"); and
- (4) self-evaluative coping skills and error-correcting options ("That's okay. . .Even if I make an error I can go on slowly") (Meichenbaum, 1979, p. 19).

The goal of verbal self instruction is not to teach the child a number of discrete response sets, but to aid the child in developing his or her own private speech that will govern the behaviors needing control in his or her life. To guard against mechanical, non-involved responses of the child, the trainer should choose concrete, observable training tasks that require motor responses as well as verbal responses (Meichenbaum, 1977). Meichenbaum also encourages clinicians to add to this basic self instruction package variations that might enhance treatment with individual children. Ideas include using

play to model and initiate self-talk, adding correspondence training (establishing correspondence between the child's verbal statements and his or her behavior by having the child state his or her intention to do the task, then giving the child specific feedback about the extent to which he or she executed the intention), or adding operant procedures such as response-cost contingencies (Meichenbaum, 1979). No step can be omitted from the five procedural steps described above, however. In particular, active rehearsal increases self-control on cognitive task performance significantly, compared to use of the verbal self instruction without active rehearsal (Meichenbaum & Goodman, 1971; Schleser, Meyers, & Cohen, 1981).

A directed discovery version of verbal self instruction has been developed and compared to the standard version of Meichenbaum and Goodman (Schleser, Cohen, Meyers, & Rodick, 1984). This version contains the same task specific strategy of the original verbal self instruction package but without the experimenter's cognitive modeling of self statements. Instead, the experimenter models the training task non-verbally. The experimenter then leads the child through a programmed Socratic dialogue to "discover" sequentially each self-statement. The child rehearses each discovered self-statement overtly but not covertly. This version has only been tested with normal children. It increased

significantly the performance of concrete operational children on a generalization task but was not more effective than the original verbal self instruction regimen in increasing their performance on the specific training task. This study suggests the roles of training procedures and of cognitive development in achieving generalization of treatment effects, which will be discussed later in this paper.

Presently, verbal self instruction is considered to have more clinical utility for children deficient in self-control than problem solving techniques have (Meichenbaum, 1979). Verbal self instruction is the cognitive behavioral intervention most consistently used in studies of clinical populations (Kendall, 1984). It has also been in use with clinical populations for a longer time than the problem solving approach has (Meichenbaum, 1979). Whether its greater clinical utility is due to the frequency and duration of its use in research or to the superiority of the technique itself cannot be determined from the literature.

Problem Solving Training

Problem solving training is the other basic cognitive behavioral intervention approach. It stems from D'Zurilla and Goldfried (1971), who defined problem solving as teaching the child to become sensitive to interpersonal problems, to develop the ability to generate alternative

solutions, and to understand means-ends relationships and the effect of one's social acts on others. Spivack and Shure (1974) developed a prototype training program for emotionally disturbed and behaviorally disruptive children, who have been found to show problem solving deficits when compared to normal schoolchildren (Spivack, Platt, & Shure, 1976). They have developed programs for preschoolers through second graders, taught in the classroom over several weeks. The lessons progress from games to develop language and attention skills and to identify emotions, to having the children generate alternative solutions to interpersonal problems and evaluate cause and effect in relationships. Using either teachers or mothers as trainers was effective in producing positive changes in social behaviors with peers. These effects were maintained at a one-year follow-up (Spivack & Shure, 1974).

Researchers using problem solving training may vary their approaches according to their subjects, but procedures are quite uniform in the common elements of modeling, overt rehearsal, role-playing, and feedback (Urbain & Kendall, 1980). These elements are combined to teach problem recognition, generation of alternative solutions to the problems, and application of the new cognitive strategies to the problem situations.

A variation of the problem solving approach is social perspective-taking. This variation is influenced by Piaget's theory that the child's development from an egocentric perspective to a perspective that considers that of other persons is facilitated by the child's active involvement with the environment. This training variation of problem solving requires the child to practice all the steps of problem solving while taking on the perspective of each person involved in the problem situation. This version has been applied most often to adolescent delinquents, whose delinquent behaviors are attributed to deficiencies in perspective-taking ability (Kendall, 1981).

Selman (1976) has continued to try to clarify the development of perspective-taking ability. In a recent longitudinal comparison of normal and delinquent adolescents, Gurucharri, Phelps, and Selman (1984) reported that delinquents lagged in perspective-taking ability beginning at age 12 and continuing to age 17, although the gap decreased with age.

Outcome studies designed to enhance perspective-taking have shown some improvement on measures designed for the studies, but have demonstrated little generalization to problem behaviors outside the training situation. There is a lack of clarity of both the exact nature of perspective-taking deficits and the relationship of perspective-taking to problem solving skills. These

weaknesses impede the progress of the outcome studies on perspective-taking (Urbain & Kendall, 1980).

In summary, problem solving approaches offer more promise than solid proof of their effect on self-control (beyond training tasks) for children experiencing self-control deficits that cause problems interpersonally. Continued application of both verbal self instruction and problem solving methods by researchers and by clinicians in controlled studies will contribute more information about how children's cognitions affect their self-control.

Applications of Cognitive Behavioral Interventions

While the initial studies of verbal self instruction and problem solving approaches showed positive results for increasing children's self-control on training tasks, they were less positive in proving the clinical utility or generalizability of the treatment effect to tasks and settings other than the training situation. Methodological weaknesses that contribute to this gap include (a) lack of specificity of training details, which hinders replications and clouds identification of active training ingredients; (b) short treatments (1 to 2 weeks) and follow-ups (2 weeks to 3 months); (c) lack of planning for generalization to occur; (d) limited attention to developmental issues; (e) limited number and reliability of some assessment instruments used; and (f) limited

applications of these interventions to children with histories of psychological treatment (Hobbs, Moguin, Tyroler, & Lahey, 1980; Urbain & Kendall, 1980).

As the weaknesses listed above have been tackled in the more recent studies, more specific guidelines in the effective application of cognitive behavioral interventions have become available. These guidelines concern three areas: (a) orchestration and specific characteristics of training procedures, (b) developmental issues, and (c) use of cognitive behavioral interventions along with other treatment modalities or as methods to be applied to each member in the child's family system.

Training Procedures

Increased self-control and generalizability of that increased self-control to tasks and situations other than those of the training situation are enhanced when any of three variations in training procedures are instituted by the trainer or clinician. Cognitive behavioral techniques can be reinforced with response-cost contingencies built into the training procedures. Generalization can be encouraged when the contents of the training procedures allow for conceptual teaching rather than just concrete teaching. Treatment effect can be strengthened when duration of treatment is longer than the earlier durations of 1 or 2 weeks. Studies that support each variation will be reported in this section.

Response-cost contingencies integrated with cognitive behavioral interventions aid client cooperation and increase learning of training procedures. Several groups of experimenters have reported that disruptive or hyperactive schoolchildren did not cooperate with verbal self instruction training until a system of rewards and costs was instituted (Bornstein & Quevillon, 1976; Douglas, Parry, Marton, & Garson, 1976; Kendall & Urbain, 1981). Kendall includes a response-cost contingency in his version of verbal self instruction in order to help control for the impulsive child's finding the right alternative self-statement by luck or due to ease of task. Briefly, the child begins with a number of tokens. The child loses one with each incorrect answer or with misuse of self-statements; the child gains one either with examples of instances where he or she could have used self instructions outside the training setting or with descriptions of instances where he or she did use self instructions outside the setting (Kendall, 1981).

Studies designed to compare the combination of verbal self instruction and response-costs to the verbal self instruction alone have been encouraging. In a case study of a hospitalized, hyperactive 9-year-old boy, only the combination treatment significantly improved his perseverance and completion of academic tasks. Treatment effects generalized from the training situation to the

classroom and were still evident in the boy's academic performance six months later (Kendall & Finch, 1976).

Controlled studies comparing the combination of verbal self instruction and response-cost to either treatment alone or to an attention control group also support the greater effectiveness of the combination condition. Barabash (1978) reported that emotionally handicapped schoolchildren treated under the combination condition increased self-control significantly on both cognitive tasks and measures of hyperactive behavior compared to either treatment alone or the control group. Kendall and Braswell (1982) reported that the combination of verbal self instruction and response-costs significantly increased teachers' blind ratings of self-control of impulsive students relative to response-costs alone or attention control groups. All three conditions led to equally improved performances on the cognitive tasks, however. Although the authors neglected to explain this unexpected finding, it appears there may have been a ceiling effect, since the range of subjects' IQ scores (80-138) was unusually top-heavy in this study.

One study (Urbain & Kendall, cited in Kendall, 1981) combined problem solving techniques (rather than verbal self instruction) with response-cost contingencies. The combination condition was not found to be more effective than response-costs alone in increasing performances on

social-cognitive training tasks and neither treatment condition led to improvements in teachers' ratings of impulsive-aggressive behaviors in the classroom. The authors suggested that the short duration of treatment (12 sessions in 6 weeks, compared with the much longer treatment durations in successful problem solving regimens, e.g., Spivack & Shure, 1974) and the measuring of aggression rather than of hyperactivity may have accounted for the lack of generalization to classroom behavior.

The combination of response-cost contingencies with verbal self instruction allows for more treatment effectiveness in increasing self-control of hyperactive children in the classroom. The effectiveness of combining response-cost contingencies with problem solving training has not yet been determined.

To enhance generalization of treatment effects to tasks other than the training tasks, the content of the training procedures must be geared toward conceptual rather than concrete learning. This is exemplified by two approaches, conceptual labeling of self instructions and the directed discovery approach to learning self-statements.

In Kendall's (1981) verbal self instruction plus response-cost approach, he differentiates concrete from conceptual teaching. The training begins with concrete

labeling of what the child does wrong ("You lose one chip because you didn't say the step 'I have to look at all the possibilities'"). Over the course of 12 sessions the training progresses toward conceptual labeling of mistakes ("You lose one chip for not going through all the steps"). The result is that the child's self-instructions become more and more conceptual.

The value of this distinction in content of training procedure is supported by two studies. Kendall and Wilcox (1980), who compared concrete, conceptual, and attention control groups, found both treatments effective in significantly increasing teachers' blind ratings of the children's self-control. Although there were only non-significant trends favoring the conceptually-trained group, the trends appear more clinically meaningful when posttest ratings of that group fell to within normal limits of hyperactivity ratings and self-control ratings. In their study of first and second graders, Schleser et al. (1981) found that those trained in general content were significantly more successful on a cognitive generalization task than were those trained in specific content of verbal self instruction.

The second approach to enhancing treatment generalization is the directed discovery version of verbal self instruction (Schleser et al., 1984), which was described earlier. Although they only measured cognitive

performance of normal schoolchildren on training tasks, the directed discovery version of verbal self instruction allowed successful performance on a generalization task compared to the regular verbal self instruction package. Again, this version appears to promote generalization of treatment effects on self-control.

The third variation of training procedures, duration of treatment, affects the strength and durability of treatment effects. Early application of verbal self instruction to children deficient in self-control consisted of four to six sessions over 1 to 2 weeks' time (e.g., Meichenbaum & Goodman, 1971). Kendall and Zupan (1981) found that 12 sessions across 6 weeks were more effective than the 6 sessions across 3 weeks of an earlier study. In another study, Kendall and Urbain (1981) attributed the significantly improved self-control of a 7-year-old hyperactive girl that was maintained at the 1-year follow-up to their 15 months of treatment.

Controlled research studies cannot go on as long as such case studies can. It is important, however, to allow sufficient time for the children to learn and apply the cognitive strategies to many training tasks. This controls for correction of rote response sets that may develop or for the completed progression from concrete to conceptual learning.

In summary, cognitive behavioral training procedures that include response-cost contingencies, conceptual teaching methods, and treatment durations long enough to ensure conceptual learning will maximize treatment effects and their generalizability to other tasks and situations requiring self-control in the treated child. Next, I will present the developmental considerations for use in the application of cognitive behavioral interventions with children.

Developmental Issues

Cognitive behavioral interventions developed for use with children are different than those used with adults, due in part to the developmental differences between the two groups (Kendall, 1981). Even so, the developmental differences among children vary and must be considered when applying the techniques. Developmental factors that affect increased self-control and its generalizability include chronological and mental age and level of cognitive development.

Meichenbaum and Goodman (1971) determined that the step of active rehearsal in their verbal self instruction regimen was crucial in obtaining a treatment effect with kindergartners and first graders. When they trained the comparison group of children who were not given the opportunity to rehearse self-statements, performance on training tasks did not improve. In the studies since

then, younger children have been found to receive more benefit from active rehearsal of self instruction than older children. Older children perform equally well under verbal self instruction or under the modified condition that excludes active rehearsal from verbal self instruction (Denney, 1975). Older children are also sometimes embarrassed and reluctant to self-rehearse out loud (Bugental, Whalen, & Henker, 1977).

Vygotsky's (1962) theory suggests that private speech has a curvilinear relationship to mental age. The amount of overt self-regulatory speech peaks at ages 5 or 6, and it has gone underground or become covert self-regulatory speech by ages 7 or 8. A recent study analyzing social versus private speech of young children engaged in problem-solving tasks (ranging from perceptual to semantic) reported results paralleling Vygotsky's theory (Frauenglass & Diaz, 1985). The study's sample included 3.5- to 6-year-olds, with mental ages ranging from 4.0 to 7.7, with a mean mental age of 6.0. Overall, the authors found that self-regulatory private speech decreased with age. Whispers and mutterings (the stage of verbal self instruction between overt rehearsal and covert self instruction) however increased with age, and then decreased, indicating a curvilinear relationship. (The authors suggested that the proposed relationship between self-regulatory speech and mental age might have

been more clearly demonstrated with a younger sample.) The study also confirmed the increase in use of private speech when faced with increased task difficulty. Therefore, it is more unnatural for older children who are adept in using covert speech to regress to overt self instructions unless the tasks are difficult.

The clinician might prepare the older child for this overt rehearsal of self instructions in order to make it a more positive experience, particularly if the training setting is with peers. The assessment of mental age of the child is a way to test the theory and to gauge the child's receptivity to active rehearsal of self-statements.

Levels of cognitive development are also guides to the application of cognitive behavioral interventions to children. Wasserman (1983) notes that adult cognitive strategies such as rational emotive training (RET) (Ellis, 1971) have not been successful when applied to children. He suggests the necessity of formal operations before the therapist's language can be used as the basic mechanism for changes.

Schleser et al. (1984) reported that with verbal self instruction training, children who had achieved concrete operations were able to successfully complete both the training task and the generalization task.

Children who had achieved only the preoperational cognitive level could complete only the training task.

Wasserman (1983) suggests a continuum of cognitive behavioral techniques coordinated with the child's level of cognitive development to enhance treatment outcomes. These include (a) simple modeling of appropriate behaviors for very young children; (b) verbal self instruction for children ages 6 and younger; (c) imagery added to verbal self instruction for simple desensitization; and (d) complex semantic-based interventions for children ages 12 and over. His is a sketchy guide to assessing children's information-processing abilities. Nevertheless, it emphasizes his point that very young children may not have the skills to profit from cognitive behavioral interventions. Few outcome studies have addressed this question.

Combinations of Treatment Approaches

Using the training procedures described above and assessing the child's cognitive development before applying the procedures enhance treatment effectiveness in both the training setting and the classroom. Combining cognitive behavioral techniques with other treatment approaches increases the range of behaviors affected, and the durability and generalization of increased self-control in the child. These combinations are (a) cognitive behavioral techniques combined with psychostimulants in

treatment of hyperactive children, (b) cognitive behavioral techniques combined with self-monitored contingency programs, and (c) cognitive behavioral techniques taught to the child's family members as well as to the child.

Pharmacological intervention with one of the central nervous system (CNS) psychostimulants is the most common treatment for hyperactive children (Ross & Pelham, 1981). A large number of studies have shown it to be effective in the short-term management of hyperactivity. In 70% of the cases, treatment with a psychostimulant has been effective in improving rates of disruptive behavior and task relevant activities in the classroom (Sroufe, 1975). Psychostimulants alone have not been found to improve academic performance, however (Barkley & Cunningham, 1978; Douglas et al., 1976; Rie & Rie, 1977). Sprague and Sleator (1977) found that cognitive performance actually deteriorated when they administered a dosage of methylphenidate high enough to effect improved teacher behavior ratings of hyperactive behavior in the classroom.

Other disadvantages cited in the literature include (a) the prompt return of primary symptomatology upon termination of the medication; (b) children's resistance to acknowledging their dependence on the medication; (c) improvement of the child's behaviors to normal limits in only 10% of treated cases; (d) side effects, such as

weight gain, depression, tics; and (e) lack of knowledge about the effects of chronic use of psychostimulants (Brown, Wynne, & Medenis, 1985; Franks, 1982; Ross & Pelham, 1981).

Brown et al. (1985) compared the effects of a low dose methylphenidate condition alone, a verbal self instruction condition alone, a low dose plus verbal self instruction condition, and an attention control on hyperactive children. They found that the low dosage was effective in improving teacher ratings of classroom hyperactive behaviors. The children treated with the combination of verbal self instruction and medication improved on both teacher behavior ratings and cognitive training tasks. Verbal self instruction alone improved cognitive performance but not behavior ratings in the classroom. The study suggests, however, that a low dose of psychostimulants may be useful in both controlling the classroom behavior of hyperactive children and allowing those children to learn cognitive strategies to improve their academic performances.

A second treatment combination effective in increasing self-control in hyperactive or impulsive children is verbal self instruction and behavioral contingencies managed by the child, not the trainer. In their study of 7- to 10-year-old hyperactive boys, Barkley, Copeland, and Savage (1980) applied verbal self instruction combined

with a self-monitoring regimen (giving themselves points when they were on-task at the cues) to half of the sample. The combination was more effective in increasing on-task and appropriate classroom behaviors during individual work times than verbal self instruction alone.

In a similar study, Neilans and Israel (1981) reported that, for children placed in a group home due to past behavioral problems, the combination of verbal self instruction with self-regulation (self-monitoring, self-goal-setting, and self-evaluation) was superior to either condition alone in reducing off-task and disruptive behaviors with or without the teacher present. Two studies of hyperactive out-patient children also reported that this combination of treatments yielded significant reductions in disruptive behaviors, compared to either condition alone (Cameron & Robinson, 1980; Varni & Henker, 1979).

The third combination of treatment approaches is to include the child's family members in the cognitive behavioral intervention. Meichenbaum (1977) recommends that the clinician teach parents to train their children in verbal self instruction to enhance treatment generalization and provide in vivo training.

Shure and Spivack (1978) demonstrated the potential value of parent training in problem solving. They assessed the problem solving abilities of mothers of preschoolers

prior to training the mothers to teach problem solving to their children. They found that there were initial differences in problem solving abilities of mothers and consequently in their styles of communication with their children. Trained mothers exhibited significant changes in their child-rearing approaches toward a more effective problem solving style. Children of all trained mothers improved on measures of alternate and consequential thinking and on teacher behavior ratings of hyperactive behavior. Although a follow-up assessment was not reported, the study demonstrates that training parents to teach cognitive behavioral techniques to their own children is as effective as training teachers. Training parents also allows the child to practice the new strategies at home and to apply them to situations beyond the classroom or training setting.

Two studies of problem-solving training applied to family members as well as to the target child have yielded treatment outcomes that were durable and appeared to generalize to interpersonal situations beyond the therapy sessions. Parsons and Alexander (1973; Alexander & Parsons, 1973) demonstrated the effectiveness of a short-term intervention applying a social problem solving model to family therapy for adolescent status offenders. The approach included therapist modeling, prompting, and reinforcing of all members in communicating facts and

feelings, in generating demands and alternative solutions, and in negotiating. This treatment proved more effective than a short-term client-centered therapy approach, a psychodynamic family program, a no treatment control, or an attentional control discussion group in increasing family interactions (frequency and duration of spontaneous speech, equality of verbalization).

Evidence for maintenance of the treatment effects was the follow-up 2 1/2 to 3 1/2 years later. Court appearances of the siblings of the problem solving condition were one third to one half below the comparison groups; recidivism of the original offenders was significantly lower than the comparison groups (Klein, Alexander, & Parsons, 1977). With the increased emphasis in theory and research on the child's social ecology and on treatment of the child within his or her various social systems, the family must be considered in the application of cognitive behavioral strategies to their problem children.

In summary, using a cognitive behavioral intervention as part of a larger treatment regimen expands treatment outcome possibilities. Combining the interventions with psychostimulants, with self-monitored behavioral contingencies, and with parent training increases the range of behaviors affected and the potential for generalization of those behaviors.

Conclusions

I began by asserting that clinicians must increase the levels of self-control of their hyperactive, impulsive, or aggressive child clients to treat their academic, social, and personal problems effectively. Outcome studies of cognitive behavioral interventions have contributed data suggesting that effective application of these interventions does increase the children's self-control. But do these interventions by clinicians result in effective treatment of the children's academic, social, and personal problems? Research designed to specifically answer this question is minimal.

Measures of change in the children's problems must be employed, such as: (a) schoolwork--are the child's grades improving? (b) parent ratings--are the parents pleased with behavior changes observed in the home or reported by the teacher? (c) peer ratings--do the child's peers like him or her better? and (d) self-reports--does the child perceive fewer problems in different settings or with different persons? The measures must be in place prior to treatment and assessed periodically during and after treatment. Consistent use of such common sense measures would help determine whether or not the problems are being treated.

Some children's problems may not be solved simply by the recommended applications of cognitive behavioral interventions. The interventions might be effective however in preparing the child for further therapeutic interventions that would lead to successful treatment of the problems. To train the hyperactive child to sit on a chair, to attend to instructions, or to listen to other children could contribute to his or her ultimate gains from family, play, or milieu therapy. Assessment of this aspect of cognitive behavioral interventions could contribute data concerning their clinical utility that is currently lacking.

Cognitive developmental research is abundant but cognitive behavioral researchers seem to have side-stepped this body of knowledge in designing outcome studies. Matching children according to their cognitive developmental levels (i.e., preoperational or concrete operational) would help clarify the active ingredients of cognitive behavioral interventions. Such designs could also demonstrate children's capacities for the generalization of treatment effects to other behaviors and settings.

Review of the cognitive behavioral interventions literature reveals the gaps remaining in the exploration of treatment effectiveness with children. Current research indicates that such interventions carry potential

power for effecting increase self-control in children.
Further research and practice that addresses these
remaining areas will provide the data necessary to
realize that potential.

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